FIG. 1

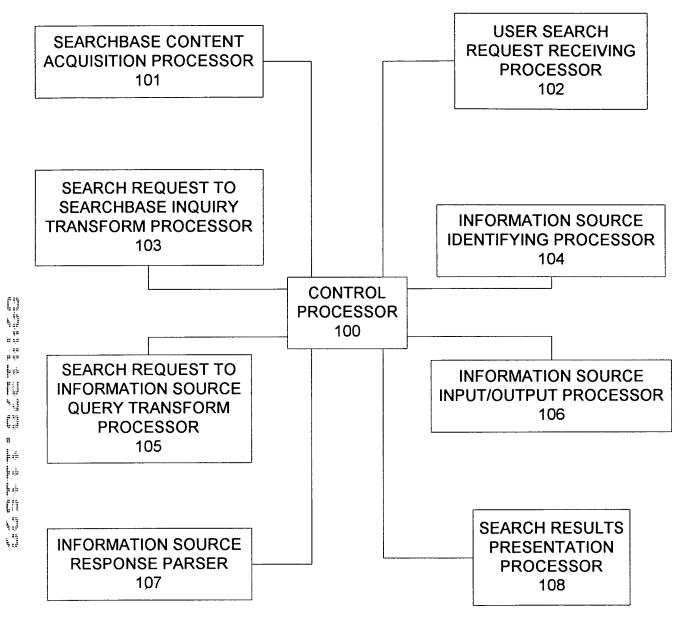


FIG. 2A

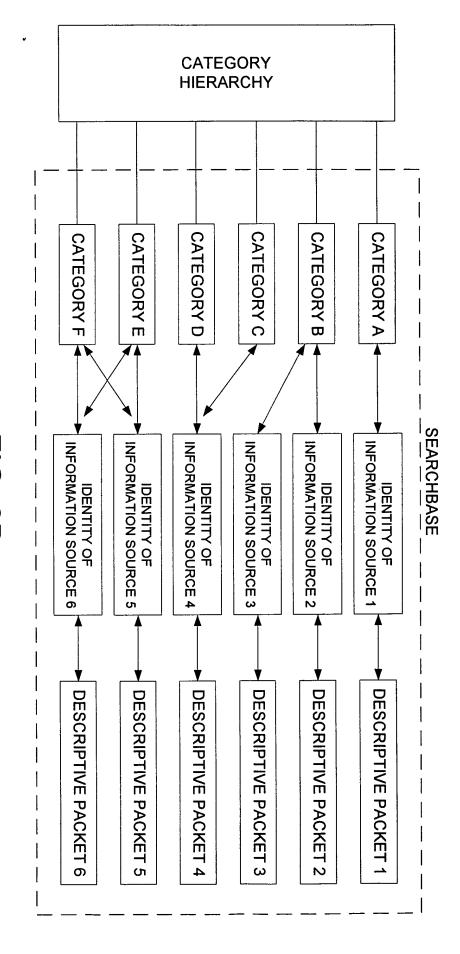


FIG. 2B

books

#### Categories

#### <u>Vendor Associated</u> <u>With Information</u> <u>Source</u>

```
apparel ......Alpha
apparel-shoe ......Beta
apparel-shoe-boy
apparel-shoe-girl
apparel-shoe-men
apparel-shoe-women
apparel-shoe-athletic-hiking
apparel-shoe-athletic-riding
apparel-shoe-athletic-running
apparel-shoe-athletic-tennis
apparel-shoe-casual
apparel-shoe-dress
apparel-shoe-elevator
apparel-shoe-formal
apparel-shoe-formal-antique
apparel-shoe-sandal
apparel-shoe-slipper
apparel-shoe-slipper-ballet
apparel-shoe-slipper-bedroom
apparel-shoe-slipper-glass
apparel-sleepwear
```

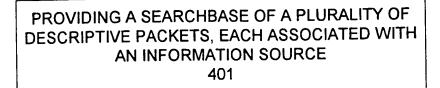
FIG. 3A

#### <u>Categories</u>

### Vendor(s) Associated With Information Source

apparelAlpha,	Beta,	Gamma
apparel-shoeAlpha,	Beta,	Gamma
apparel-shoe-boyAlpha,	Beta	
apparel-shoe-girlAlpha,	Beta	
apparel-shoe-menAlpha,	Beta	
apparel-shoe-womenAlpha,	Beta	
apparel-shoe-athleticAlpha,	Beta,	Gamma
apparel-shoe-athletic-hikingAlpha,	Beta,	Gamma
apparel-shoe-athletic-ridingAlpha,	Beta,	Gamma
apparel-shoe-athletic-runningAlpha,	Beta,	Gamma
apparel-shoe-athletic-tennisAlpha,	Beta,	Gamma
apparel-shoe-casualAlpha,	Beta	
apparel-shoe-dressAlpha,	Beta	
apparel-shoe-elevatorAlpha,	Beta	
apparel-shoe-formalAlpha,	Beta	
apparel-shoe-formal-antiqueAlpha,	Beta	
•		
•		
•		
apparel-shoe-sandalAlpha,	Beta	
apparel-shoe-slipperAlpha,	Beta	
apparel-shoe-slipper-balletAlpha,	Beta	
${\tt apparel-shoe-slipper-bedroom} \ \dots \dots \\ {\tt Alpha},$	Beta	
apparel-shoe-slipper-glassAlpha,	Beta	
apparel-sleepwearAlpha		
•		
•		

books



RECEIVING FROM A USER A SEARCH REQUEST SPECIFYING SEARCH CRITERIA 402

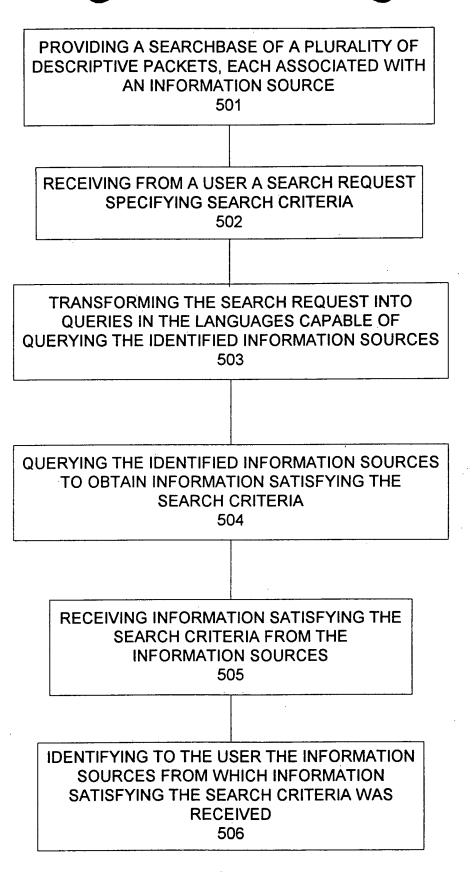
TRANSFORMING THE SEARCH REQUEST INTO AN INQUIRY CAPABLE OF SEARCHING THE SEARCHBASE 403

SEARCHING THE SEARCHBASE TO IDENTIFY INFORMATION SOURCES WHICH POTENTIALLY COULD SATISFY THE SEARCH CRITERIA 404

TRANSFORMING THE SEARCH REQUEST INTO QUERIES IN THE LANGUAGES CAPABLE OF QUERYING THE IDENTIFIED INFORMATION SOURCES 405

QUERYING THE IDENTIFIED INFORMATION SOURCES
TO OBTAIN INFORMATION SATISFYING THE
SEARCH CRITERIA
406

RECEIVING INFORMATION SATISFYING THE SEARCH CRITERIA FROM THE INFORMATION SOURCES 407



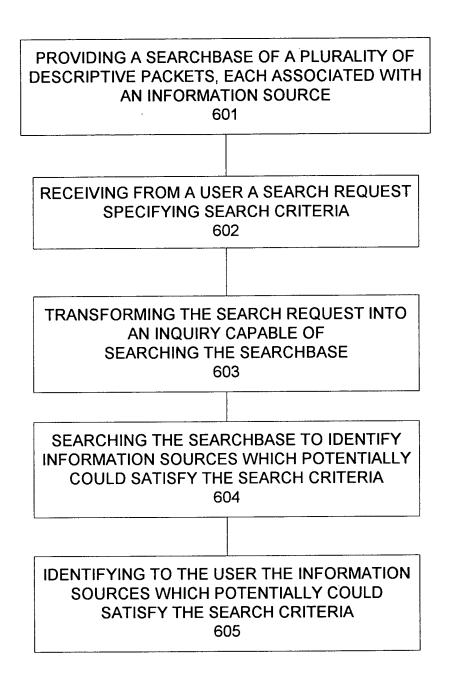


FIG. 6

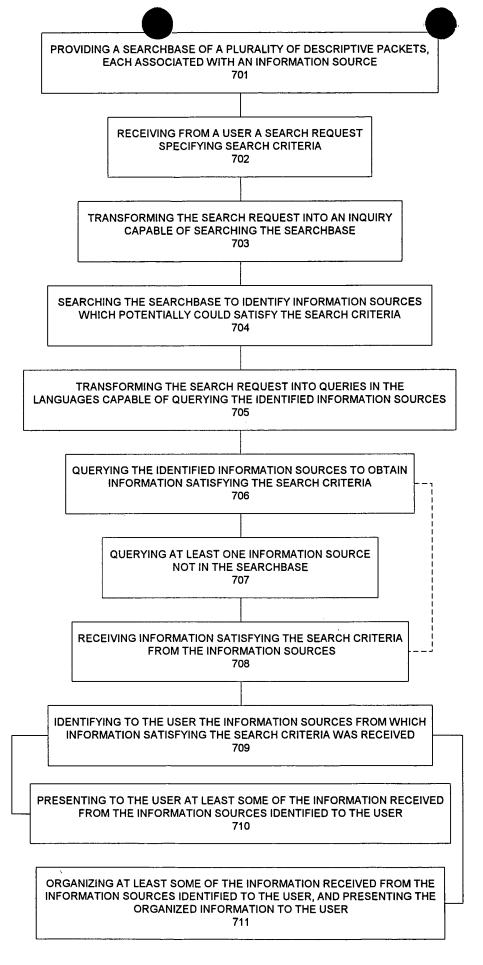
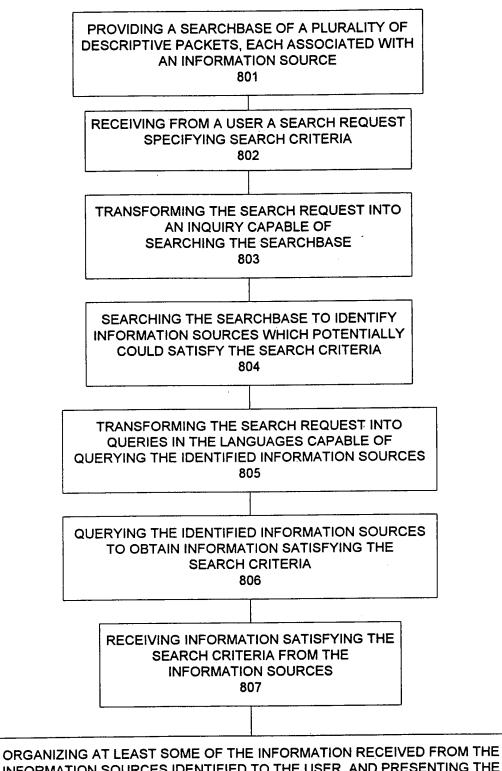


FIG. 7



ORGANIZING AT LEAST SOME OF THE INFORMATION RECEIVED FROM THE INFORMATION SOURCES IDENTIFIED TO THE USER, AND PRESENTING THE ORGANIZED INFORMATION TO THE USER

808

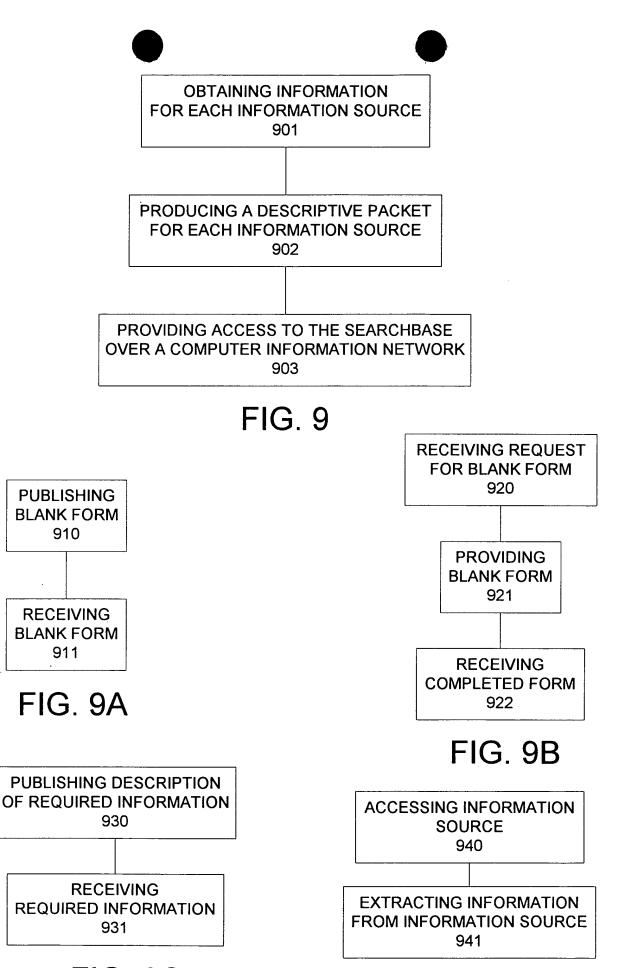
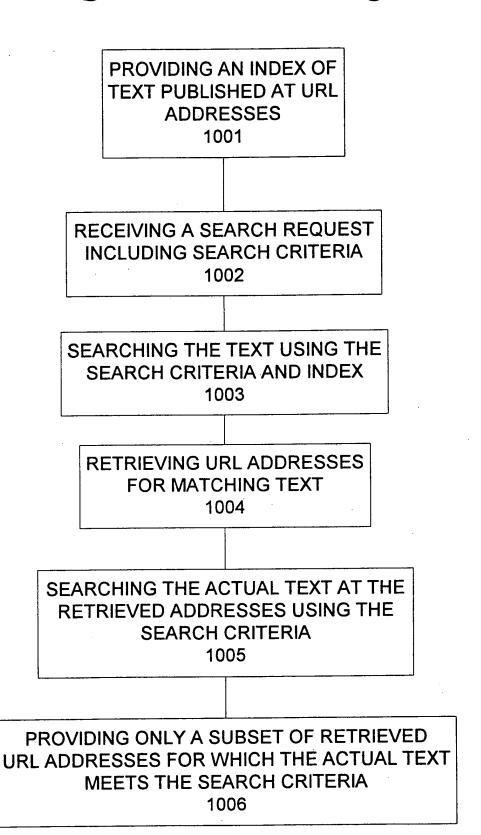


FIG. 9D

FIG. 9C



```
apparel
      shoe
           boy, girl, men, women
           athletic, casual, dress, elevator, formal, work
           Gucci, Nike, Nine West, Reebok
           boot, high-heel, loafer, sandal, slipper
                 Expansions under athletic, formal, and slipper are:
                 athletic
                     hiking, riding, running, tennis
                 formal
                      antique, costume, dress, modern
                 slipper
                      ballet, bedroom, glass
       sleepwear
Ĺħ
 books
```

FIG. 11A

idor [	Description	Price	Other Attributes	Product ID
		\$120	grey	A0001, grey boots
	nen's dress			A0002, wonderful dress shoe in black
	men's dress	\$100	brown	A0003, men's dress shoe in brown
	women's loafer	\$60	burgandy	A0004, women's loafer in burgandy
	women's slipper	\$30	white	A0005, women's slipper in white
	dress	\$75	black, sizes 9-12	B0001, dress shoes, various sizes, black
	dress	\$75	brown, sizes 7-12	B0002, dress shoes, various sizes, brown
a i	men's formal	\$95	black, sizes 7-12	B0003, formal shoe for men
	running	\$40	white	B0004, white running shoe
		\$35	white	B0005, white tennis shoe for men
		\$120		C0001, riding shoes
		\$35	Nike	C0002, Nike running shoe
	running	\$40	Reebok	C0003, Reebok running shoe
nma	tennis	\$45		C0004, generic tennis shoe
	waders	\$140		C0005, specialty shoe/boot: waders
		FI	G. 11B	
h h h h a a a a r	a la	boot a men's dress a men's dress a women's loafer a women's slipper a dress a dress a men's formal a running a men's tennis a running	na         boot         \$120           na         men's dress         \$150           na         men's dress         \$100           na         women's loafer         \$60           na         women's slipper         \$30           na         dress         \$75           na         dress         \$75           na         running         \$40           na         men's tennis         \$35           na         running         \$35           nma         running         \$40           nma         running         \$40           nma         tennis         \$45           nma         waders         \$140	boot \$120 grey a men's dress \$150 black a men's dress \$100 brown a women's loafer \$60 burgandy a women's slipper \$30 white a dress \$75 black, sizes 9-12 a dress \$75 brown, sizes 7-12 a men's formal \$95 black, sizes 7-12 a running \$40 white a men's tennis \$35 white a men's tennis \$35 white a ma running \$40 Reebok a running \$40 Reebok a ma tennis \$45



#### FIG. 12A

## Add InfoSource

	Searchcraft home About Us	Add Your Site As	An Information S	Source	
	Add Into Surf	Submitting this form will a	•		
	Name:	and allow users to search y	our up-to-the-minute data	base.	
	Company:				
	Address:				
	•		· · · · · · · · · · · · · · · · · · ·	> 1201	
	Phone:				
	Fax:				
	E-mail:				
1202	What queries do you want sent to	and a second and a second and a second and a second a sec	EVCEDT those shout: (chaose t	he categories for queries) (click	
	you?	"sub-menus" to see the sub-menu	s of selected categories)	ne categories for queries) (chek	
		(For descriptions and other hel			
	(		wers & Gifts	Video Toys & Games	
<b>C</b> 7	)203 }	☐ Books ☐ F∞	d & Drink	Travel	
The state of the s	1	☐ Computers ☐ Hea	lth & Beauty Office	more categories	
	~	☐ Electronics ☐ Hor	ne & Garden	itness sub-menus	
<b>.</b> ₽::		We need to know how to formula understand your responses.	te a query for you, how to comm	unicate with you, and how to	
<b>[</b> []		☐ I'll tell you now by filling in A	ARCD F and Fnow	7	
<b>L</b> Ģ		☐ I'll tell you later. I'll fill in A,		tact me. { 1210	
≡ Ļ÷		(click here for instructions)			
<b>.</b>		The following inputs provide met from your response. For each set,		nunicate, and to extract information ing to your site. (click here for	
l+ L!!		further details.)	-		
		□ c/c++	MQSeries	URL )	
₹.	A. Language used to query your		Pascal	VBScript > 12	.04
	site:	Corba	Python	□ XML	·
		∐ Java	☐ TCL	more	
	B. Template of Query Language:			~1205	
	C. Protocol used				
	for sending to	☐ HTTP ☐ HTTPS [	☐ FTP ☐ TCP/IP ☐ c	e-mail <u>more</u> — 1206	
	you: D. Protocol used			<b>.</b>	
	for receiving from	☐ HTTP ☐ HTTPS [	☐ FTP ☐ TCP/IP ☐ o	e-mail <u>more</u> ~ 1207	
	you:	□ c/c++	☐ Pascal	□ VBScript	
	E. Language used	ļ <del> </del>	☐ Perl		
	by your site to	Grep	☐ Python	XML   7 120	08
	respond:	☐ Java	☐ TCL	more	
	F. Template of	1 <del></del>			
	response			-1209	
	langauge:	Submit Thank you C	lear	Daward by SaaraharaftSM	

This form shows you the sub-categories of the ones you selected on the previous page. Choose the categories for queries. (click "sub-menus" to see the sub-menus of selected categories)  (for descriptions and other help, click here)								
Apparel:	☐ Accessories	Dresses	☐ Formalwear	☐ Jewelry	$\gamma$			
	Outerwear	Pants	Shoes	☐ Sleepwear				
	☐ Specialty	☐ Sportswear	☐ Suits	☐ Underwear	> 1211			
	☐ Uniforms	☐ Watches	■ Wedding	☐ Work	(			
			<u>more</u>	sub-menus				
Submit	Thank you.	Clear	Powered 1	by Searchcraft <sup>SM</sup>				

FIG. 12B

The state of the s

About U	the categories for		b-menus" to see th	selected on the previous sub-menus of selected	
Shoes:	□ boy	☐ girl	☐ men	☐ women	$\cap$
	☐ athletic	☐ casual	☐ dress	☐ elevator	
	☐ formal	☐ work			
	☐ boot	☐ high heel	☐ loafer	☐ sandal	1010
	☐ slipper				> 1212
	☐ brand name	es			(
	☐ price range	s			
			more	sub-menus	
Submit	Thank you.	Clear	Powe	ered by Searchcraft <sup>Sl</sup>	м

FIG. 12C



Searchcraft home About Us	Add Your Site As	An Information S	Source
Addition	Submitting this form will a		
	and allow users to search y	your up-to-the-minute data	base.
Name:	Andy Alpha		
Company:	Alpha		
Address:	123 Main St.		
Phone:	(123) 456-7890		
Fax:	(123) 456-7891		
E-mail:	andy@alpha.com		
What queries do you want sent to you?	Send me every query.  Do not send me any queries l'sub-menus" to see the sub-menu  (For descriptions and other hel	s of selected categories)	he categories for queries) (click
	☑ Apparel ☐ Flow	wers & Gifts	Video Toys & Games
	☐ Books ☐ Foo	d & Drink Music	☐ Travel
	☐ Computers ☐ Hea	alth & Beauty Office	more categories
	☐ Electronics ☐ Hor	ne & Garden	itness <u>sub-menus</u>
	We need to know how to formula understand your responses.		unicate with you, and how to
Choose One:	☐ I'll tell you now by filling in A,  (click here for instructions)  The following inputs provide met from your response. For each set, further details.)	B, C, and D now so you can conthods to query your site, to comm	unicate, and to extract information
	☐ C/C++	☐ MQSeries	☑ URL
A. Language used	☐ Cobol	☐ Pascal	☐ VBScript
to query your site:	il I Corbo	☐ Python	☐ XML
	☐ Java	☐ TCL	more
B. Template of Query Language:	http://www.alpha.com/	/bin/getproduct?type=	<type>&amp;color=<co< th=""></co<></type>
you:	☑ HTTP ☐ HTTPS [	☐ FTP ☐ TCP/IP ☐	e-mail <u>more</u>
D. Protocol used for receiving from you:	☑ HTTP ☐ HTTPS [	FTP TCP/IP	e-mail <u>more</u>
	□ c/c++	Pascal	☐ VBScript
E. Language used by your site to		☐ Perl	☐ VBA
respond:	☑ Grep	☐ Python	☐ XML
	☐ Java	☐ TCL	more
F. Template of	(am. ). (a = ) =		
response langauge:	SKU:\t{A-Z}*\nType:\t	t{A-Z}*\nColor:A-Z	*\nPrice:\${0-9}

Clear

Thank you.

Submit



#### FIG. 14A



# Add InfoSource

Searchdraft home About Us	Add Your Site As	s An Info	rmation S	Sourc	ee
236 H 635 111	Submitting this form will a and allow users to search	-			
Name:	Betty Beta				
Company:	Beta				
Address:	101 San Rafael	·			
Phone:	415-514-4321				
Fax:	415-514-4322				
E-mail:	betty@beta.com				
What queries do you want sent to you?	☐ Send me every query. ☐ Do not send me any queries "sub-menus" to see the sub-menu (For descriptions and other he	us of selected cate		ne catego	ories for queries) (click
	Apparel Flo	wers & Gifts	☐ Movies & \	/ideo	☐ Toys & Games
	☐ Books ☐ Foo	od & Drink	☐ Music		☐ Travel
	☐ Computers ☐ He	alth & Beauty	Office		more categories
	☐ Electronics ☐ Ho	me & Garden	☐ Sports & Fi	tness	sub-menus
Choose One:	understand your responses.  I'll tell you now by filling in I'll tell you later. I'll fill in A (click here for instructions) The following inputs provide me from your response. For each set further details.)	, B, C, and D nove	v so you can cont our site, to comm	unicate,	
	☑ C/C++	☐ MQSeries		☐ UR	L
A. Language used to query your	☐ · Cobol	☐ Pascal		☐ VB	Script
site:	☐ Corba	☐ Python			Œ.
	☐ Java	☐ TCL		more	
B. Template of Query Language:		, <color>; c</color>	ode: #inclu	ıde <s< th=""><th>tdio.h&gt;</th></s<>	tdio.h>
C. Protocol used for sending to you:	☐ HTTP ☐ HTTPS	□ FTP ☑ 1	CCP/IP 🔲 e	e-mail	<u>more</u>
D. Protocol used for receiving from you:	☐ HTTP ☐ HTTPS	☐ FTP ☑ 1	TCP/IP 🗖 e	e-mail	more
	☐ C/C++	☐ Pascal		☐ VE	Script
E. Language used		☐ Perl		☐ VE	A
by your site to respond:		☐ Python			ΔL
	☐ Java	☐ TCL		more	
F. Template of	e de la calación de l				
response langauge:	<id>,<description>,&lt;</description></id>	coror>, <pri< th=""><th><u> </u></th><th></th><th></th></pri<>	<u> </u>		

Clear

Thank you.

Submit

ALEEU LE	categories for q	uerie	the sub-categories of s. (click "sub-menus" other help, click here	to s	nes you selected ee the sub-menus	on th of se	ne previous page. Choose the elected categories)
Apparel:	Accessories		Dresses		Formalwear		Jewelry
	Outerwear		Pants	Ø	Shoes		Sleepwear
	Specialty		Sportswear		Suits		Underwear
	Uniforms		Watches		Wedding		Work
				me	ore	su	<u>b-menus</u>
Submit	Thank you.	Cle	ear		Powered by	y Sea	archeraft <sup>SM</sup>

FIG. 14B

Hamilton and the state of the s



Submit

Thank you.

Clear

3,

#### FIG. 15A



25 "% % % % % % % % 100 x 100	2 45 455 455 455 2 455 455		***************************************	***************************************	***************		
Searchoratchoine About Us Addintossure	Add Your Sit						
		and allow users to search your up-to-the-minute database.					
Name:	George Gamma						
Company:	Gamma						
Address:	5A Memorial Dri	ve					
Phone:	(617) 789-3456						
Fax:	(617) 789-3457						
E-mail:	george@gamma.co	m					
What queries do you want sent to you?		queries EXCEPT those aub-menus of selected cat		categories for queries) (cl	lick		
	Apparel	Flowers & Gifts	☐ Movies & Vio	deo Toys & Games			
	☐ Books	Food & Drink	☐ Music	☐ Travel			
	Computers	☐ Health & Beauty	Office	more categories			
	☐ Electronics	☐ Home & Garden	Sports & Fitn	ess <u>sub-menus</u>			
	We need to know how to understand your response		ou, how to commun	icate with you, and how to			
	☑ I'll tell you now by fi		nd F now.				
Choose One:	☐ I'll tell you later. I'll t			et me.			
	(click here for instruct	<del></del>	i <b>-</b>	.:	4:		
	from your response. For			nicate, and to extract inform g to your site. <u>(click here fo</u>			
	further details.)			<b>-</b>	<b>—</b> ;		
A T	□ c/c++	MQSeries	<u> </u> L	URL	_		
A. Language used to query your		Pascal		VBScript	$\dashv$		
site:	Corba	Python		XML	$\dashv$		
	L Java	☐ TCL	L	more			
B. Template of Query Language:	http://www.gamm	a.com/bin/getsho	es?t= <type>&amp;</type>	c= <color>&amp;p=<p< th=""><th></th></p<></color>			
C. Protocol used							
for sending to	☑ HTTP ☐ HT7	TPS   FTP   7	TCP/IP	mail <u>more</u>			
you: D. Protocol used							
~	☑ HTTP ☐ HTT	TPS 🗆 FTP 🗖	TCP/IP	mail <u>more</u>			
you:	□ c/c++	☐ Pascal	Ir	<b>☐</b> VBScript			
E. Language used	<del></del>	Perl	——— <del> </del>	VBScript  VBA	$\dashv$		
by your site to	☐ Grep	☐ Python		] XML	$\dashv$		
respond:	☐ Java	☐ TCL		nore	$\dashv$		
F. Template of	1				<i>-</i>		
response	<id>,<price>,<c< th=""><th>olor&gt;,<descripti< th=""><th>on&gt;</th><th></th><th></th></descripti<></th></c<></price></id>	olor>, <descripti< th=""><th>on&gt;</th><th></th><th></th></descripti<>	on>				
langauge:							

Asout categories for		nenus" to see the sub-men	ed on the previous page. Choo us of selected categories)	se the
Apparel: Accessorie	s Dresses	☐ Formalwear	Jewelry	
Outerwear	Pants	Shoes	☐ Sleepwear	
☐ Specialty	☐ Sportswear	☐ Suits	Underwear	
Uniforms	Watches	■ Wedding	☐ Work	
		<u>more</u>	sub-menus	
Submit Thank you.	Clear	Powered	by Searchcraft <sup>SM</sup>	

FIG. 15B

The state of the s

About U	the		queri	es. (click "sub	o-men	us" to see the su	on the previous page. Choose enus of selected categories)
Shoes:		boy		girl		men	women
	V	athletic		casual		dress	elevator
		formal		work			
		boot		high heel		loafer	sandal
		slipper					
		brand name	s				
		price range	s				
Submit	:	Thank you.		Clear	m	Ore Powered	<u>b-menus</u> Searchcraft <sup>SM</sup>

FIG. 15C

The state of the s



(	

<b>Δ</b> Δ <b>3</b>	Vour	Site	Δς Δη	Informa	ation	Source
= Auu	I Our	DILE.	AS All	THIOTHE	auon	Source

Searcheralt home	Add Your Site As An Information Source				
About Us Add (1895)	Submitting this form will add you to our Searchbase <sup>TM</sup>				
***************************************	and allow users to search your up-to-the-minute database.				
Name:	Denise Delta				
Company:	Delta				
Address:	1 Broadway				
Phone:	617-716-9876				
Fax:	617-716-9875				
E-mail:	denise@delta.com				
What queries do	✓ Send me every query.				
you want sent to you?	Do not send me any	queries EXCEPT those	about: (choose the categ	ories for queries) (click	
•	"sub-menus" to see the su (For descriptions and		egories)		
	☐ Apparel	☐ Flowers & Gifts	☐ Movies & Video	☐ Toys & Games	
	Books	☐ Food & Drink	☐ Music	☐ Travel	
	Computers	☐ Health & Beauty	Office	more categories	
	☐ Electronics	☐ Home & Garden	☐ Sports & Fitness	sub-menus	
	We need to know how to				
	understand your response	es.		, , , , , , , , , , , , , , , , , , ,	
Chassa Ones	I'll tell you now by fi				
Choose One:	I'll tell you later. I'll fill in A, B, C, and D now so you can contact me. (click here for instructions)				
	The following inputs provide methods to query your site, to communicate, and to extract information				
	from your response. For each set, choose the response corresponding to your site. (click here for further details.)				
	□ c/c++	☐ MQSeries	☑ UI	<u>.</u>	
A. Language used	Cobol	☐ Pascal		SScript	
to query your site:	☐ Corba	☐ Python	XX		
31.01	☐ Java	☐ TCL	more		
B. Template of	https://www.dolt	a.com/cgi/getmet	h a d a		
Query Language:	nccp://www.delc	a.com/cg1/getmet	noas	·	
C. Protocol used	☑ HTTP ☐ HT7	rps   T ftp   T r	ΓCP/IP □ e-mail	more	
you:				more	
D. Protocol used	☑ HTTP ☐ HTT	TPS   TTP   TT	TCP/IP □ e-mail	more	
you:			C-man	more	
	☐ C/C++	☐ Pascal	☐ VI	SScript	
E. Language used by your site to	□ csv	☐ Perl	□ VE	ЗА	
respond:	☐ Grep	☐ Python	X	VIT.	
	Java	☐ TCL	more		
F. Template of response					
langauge:					
	Submit Thank you	u. Clear		Powered by Searchcraft	

#### Add InfoSource ftp/email

About Us add of Source

1

This page provides directions for sending your site information to us via either FTP or e-mail. (For more detailed instructions, click here)

	the body of your e-mail must be in text form and have lines that begin with a keyword followed by a hen followed by your information. The keywords are below.
Keyword	Description of information
Name	Your name, for contact purposes
Company	Your company
Address	Your mailing address
Phone	Your telephone number
Fax	Your facsimile number
e-mail	the e-mail address you want correspondence to go to
query categories	categories in which you want queries to be sent to you
method definition time	either "now" or "later". "Now" means you will fill in the rest of the fields, while "later" means you will tell us only how to query your site to contact you.
query language	One of the acceptable languages currently processed.
query template	A template in the above query language we can process to formulate a query to you
send protocol	One of the acceptable protocols currently allowed.
receive protocol	One of the acceptable protocols currently allowed.
response language	One of the acceptable languages currently processed.
parse template	A template in the above receive language we can process to parse a query received from you

Please send your file as the body of an e-mail message to infosource@searchcraft.com or ftp it to ftp.infosource.searchcraft.com.

Powered by Searchcraft<sup>SM</sup>

that appropriate the terms of t ŀ¢ • [H